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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/675,357	09/29/2000	Alex P. Yung	NCRC-0028-US (9433)	1117
26890	7590	09/29/2004	EXAMINER	
JAMES M. STOVER NCR CORPORATION 1700 SOUTH PATTERSON BLVD, WHQ4 DAYTON, OH 45479			ALI, SYED J	
			ART UNIT	PAPER NUMBER
			2127	

DATE MAILED: 09/29/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/675,357	Applicant(s) YUNG ET AL	
	Examiner Syed J Ali	Art Unit 2127	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 August 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 2-4,6-22,24,25,28-34 and 37-52 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 2-4,6-22,24,25,28-34 and 37-52 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. This office action is in response to the amendment filed August 25, 2004. Claims 2-4, 6-22, 24-25, 28-34, and 37-52 are presented for examination.

2. The text of those sections of Title 35, U.S. code not included in this office action can be found in a prior office action.

Claim Rejections - 35 USC § 103

3. **Claims 2-4, 6-22, 24-25, 28-34, and 37-52 rejected under 35 U.S.C. 103(a) as being unpatentable over Swami et al. (USPN 5,845,113) (hereinafter Swami) in view of Blair (USPN 5,369,764).**

4. As per claim 7, Swami teaches the invention as claimed, including a method of performing parallel data operations upon data in a database, comprising:

receiving a data transaction request in a client system (col. 6 lines 42-50);

executing a plurality of multi-phase parallel tasks in response to the request to perform the data operations upon the data in the database (col. 6 line 51 - col. 7 line 33), wherein executing the multi-phase parallel tasks comprises executing each of the parallel tasks in plural phases (col. 7 lines 34-49).

5. Blair teaches the invention as claimed, including the following limitations not shown by Swami:

each parallel task providing a code to indicate if the task is to be re-invoked in the next phase (col. 5 line 53 - col. 6 line 11).

6. It would have been obvious to one of ordinary skill in the art to combine Swami and Blair since the corruption or loss of data, particularly within network environments is a well-known concern in protecting data integrity. As Swami is a distributed database system that utilizes such a network model (col. 6 lines 14-16), it would have been obvious to one of ordinary skill in the art to take precautions against such a loss of data. Blair implements a common technique of protecting data, i.e. checkpoint restarting of programs (Abstract). Blair teaches creating rollback points at various points of a programs execution such that a "snapshot" is available at particular points in time (col. 5 line 53 - col. 6 line 11). If a program or task abnormally terminates or otherwise fails, Blair teaches restarting the program by issuing a code to indicate such (col. 5 line 53 - col. 6 line 11).

7. As per claim 2, Swami teaches the invention as claimed, including the method of claim 7, wherein receiving a data transaction request comprises receiving a request for loading data into the database (col. 6 lines 42-50).

8. As per claim 3, Swami teaches the invention as claimed, including the method of claim 7, wherein receiving a data transaction request comprises receiving a request to perform a data transformation operation upon the data in the database (col. 6 line 42 - col. 7 line 33).

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9. As per claim 4, Swami teaches the invention as claimed, including the method of claim 3, wherein receiving a request to perform the data transformation operation comprises receiving a request to perform one of a data selection operation, a data validation operation, a data cleansing operation, and a data query operation (col. 6 line 42 - col. 7 line 33).

10. As per claim 6, Swami teaches the invention as claimed, including the method of claim 7, comprising executing a first parallel task in a first number of phases and a second parallel task in a second, different number of phases (col. 7 line 50 - col. 8 line 4).

11. As per claim 8, Blair teaches the invention as claimed, including the method of claim 7, wherein providing the code comprises providing the code to a task coordinator (col. 5 line 53 - col. 6 line 11).

12. As per claim 9, Blair teaches the invention as claimed, including the method of claim 8, wherein the code comprises a first code to indicate that the task coordinator is to invoke a component in the next phase (col. 5 line 53 - col. 6 line 11).

13. As per claim 10, Blair teaches the invention as claimed, including the method of claim 8, wherein the code comprises a second code to indicate that the task is not to invoke a component in the next phase (col. 5 line 53 - col. 6 line 11).

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14. As per claim 11, Swami teaches the invention as claimed, including a method of performing parallel data operations upon data in a database, comprising:

receiving a data transaction request in a client system (col. 6 lines 42-50);

executing a plurality of multi-phase parallel tasks in response to the request to perform the data operations upon the data in the database (col. 6 line 51 - col. 7 line 33);

analyzing the transaction request (col. 6 line 51 - col. 7 line 33);

creating a task plan in response to the transaction request (col. 6 line 51 - col. 7 line 33);

implementing the task plan in a multi-phase organization (col. 6 line 51 - col. 7 line 33);

and

executing a plurality of tasks in parallel to implement the task plan (col. 6 line 51 - col. 7 line 33).

15. Blair teaches the invention as claimed, including determining whether an additional phase is required to execute the tasks based on codes returned by the tasks (col. 5 line 53 - col. 6 line 11); and

scheduling an additional phase in response to the determination that an additional phase is required (col. 5 line 53 - col. 6 line 11).

16. As per claim 12, Swami teaches the invention as claimed, including the method of claim 11, wherein implementing the task plan comprises creating a job script (col. 6 line 51 - col. 7 line 33).

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17. As per claim 13, Swami teaches the invention as claimed, including the method of claim 11, wherein implementing the task plan comprises:

translating the task plan (col. 8 line 56 - col. 9 line 2; col. 9 lines 55-67; col. 10 lines 13-34);

selecting a plurality of software components to implement the translated task plan (col. 8 line 56 - col. 9 line 2; col. 9 lines 55-67; col. 10 lines 13-34);

assigning a plurality of processes corresponding to the software components (col. 6 line 51 - col. 7 line 33); and

creating a communications channel to allow for communications between the processes (col. 6 line 51 - col. 7 line 33).

18. As per claim 14, Swami teaches the invention as claimed, including the method of claim 13, wherein selecting the plurality of software components to implement the translated task plan comprises selecting the plurality of software components to perform at least one of a data extraction operation, a data transformation operation, and a data loading operation (col. 6 lines 42-50).

19. As per claim 15, Swami teaches the invention as claimed, including an apparatus, comprising:

a user interface (col. 6 lines 42-50);

a processor coupled with the user interface, wherein the processor receives a data transaction request from the user interface (col. 6 lines 42-50); and

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a controller coupled with the processor, wherein the controller performs a plurality of tasks in parallel based upon instructions received from the processor, each tasks performed in a plurality of phases (col. 6 line 51 - col. 7 line 49),

20. Blair teaches the invention as claimed, including each task to provide a code to indicate whether the task is to be re-invoked in a next phase (col. 5 line 53 - col. 6 line 11).

21. As per claim 16, Swami teaches the invention as claimed, including the apparatus of claim 15, wherein the processor generates a task plan in response to the data transaction request (col. 6 line 51 - col. 7 line 33).

22. As per claim 17, Blair teaches the invention as claimed, including the apparatus of claim 16, wherein the controller comprises a task coordinator to execute the task plan (col. 5 line 53 - col. 6 line 11).

23. As per claim 18, Swami teaches the invention as claimed, including the apparatus of claim 16, wherein the controller further comprises a plurality of components to implement the task plan in parallel (col. 6 line 51 - col. 7 line 33).

24. As per claim 19, Swami teaches the invention as claimed, including the apparatus of claim 18, further comprising a communications interface for enabling communications between the components (col. 6 lines 14-16).

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25. As per claim 20, Swami teaches the invention as claimed, including the apparatus of claim 18, wherein the controller further comprises a storage unit for storing methods and functions to execute the task plan (col. 5 line 52 - col. 6 line 13).

26. As per claim 21, Swami teaches the invention as claimed, including the apparatus of claim 15, wherein the controller is coupled with the processor, wherein the controller performs a number of tasks in parallel based upon instructions received from the processor, each task performed in a plurality of phases further comprises the controller performing the tasks in a sequence of multiple process steps (col. 6 lines 25-31; col. 7 lines 24-49).

27. As per claim 22, Swami teaches the invention as claimed, including a system, comprising:

a database system (col. 5 line 52 - col. 6 line 13); and

a network (col. 6 lines 14-16).

28. Blair teaches the invention as claimed, including a client system separate from the database system and coupled to the database system (col. 3 line 45 - col. 4 line 6), the client system to establish plural sessions with the database system (col. 5 line 53 - col. 6 line 11) to implement a plurality of data operations upon the database system in parallel (col. 5 line 53 - col. 6 line 11).

29. It is noted that Blair does not specifically address the use of a network. However, the model used by Blair is easily implemented in a networked environment, as the general architecture is presented essentially as a distributed system. Additionally, although Blair is cited

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as teaching implementing a plurality of data operations upon the database system in parallel, this is also taught by Swami (col. 6 line 51 - col. 7 line 33).

30. As per claim 24, Swami teaches the invention as claimed, including the system of claim 22, wherein the database is a parallel database system (col. 5 line 52 - col. 6 line 13).

31. As per claim 25, Swami teaches the invention as claimed, including the system of claim 22, wherein the client system comprises:

a processor to receive a data transaction request (col. 5 line 52 - col. 6 line 13);

a plurality of operators to perform parallel data operations in response to the data transaction request (col. 5 line 52 - col. 6 line 13);

an operator interface coupled to the operators, wherein the operator interface allows communications between the operators (col. 5 line 52 - col. 6 line 16).

32. As per claim 28, Swami teaches the invention as claimed, including an article comprising at least one storage medium containing instructions that when executed cause a client system to:

receive a data transaction request (col. 6 lines 42-50);

execute a plurality of parallel tasks in the plural sessions to perform data operations upon the data in the database system over a network connection (col. 6 line 51 - col. 7 line 33).

33. Blair teaches the invention as claimed, including establishing plural sessions with a database system in response to the request (col. 5 line 53 - col. 6 line 11); and

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wherein the client system is separate from the database system (col. 3 line 45 - col. 4 line 6).

34. As per claim 29, Swami teaches the invention as claimed, including the article of claim 28, wherein the instructions when executed cause the client system to execute each of the parallel tasks in plural phases (col. 7 lines 34-49).

35. As per claim 30, Swami teaches the invention as claimed, including the article of claim 29, wherein the instruction when executed cause the client system to execute a first parallel task in a first number of phases and a second parallel task in a second, different number of phases (col. 7 line 50 - col. 8 line 4).

36. As per claim 31, Blair teaches the invention as claimed, including the article of claim 29, wherein the instructions when executed cause each parallel task to provide a code to indicate if the task is to be re-invoked in the next phase (col. 5 line 53 - col. 6 line 11).

37. As per claim 32, Blair teaches the invention as claimed, including the article of claim 31, wherein the instructions when executed cause the parallel task to provide the code to a task coordinator (col. 5 line 53 - col. 6 line 11).

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38. As per claim 33, Blair teaches the invention as claimed, including the article of claim 32, wherein the code comprises a first code to indicate that the task coordinator is to invoke a component in the next phase (col. 5 line 53 - col. 6 line 11).

39. As per claim 34, Blair teaches the invention as claimed, including the article of claim 32, wherein the code comprises a second code to indicate that the task is not to invoke the component in the next phase (col. 5 line 53 - col. 6 line 11).

40. As per claim 37, Swami teaches the invention as claimed, including the method of claim 38, comprising executing a first parallel task in a first number of phases and a second parallel task in a second, different number of phases (col. 7 line 50 - col. 8 line 4).

41. As per claim 38, Swami teaches the invention as claimed, including a method of performing parallel data operations upon data in a database, comprising:

receiving a data transaction request (col. 6 lines 42-50); and

executing a plurality of synchronized multi-phase parallel tasks in response to the request to perform the data operations upon the data in the database (col. 6 line 51 - col. 7 line 33),

wherein executing the multi-phase parallel tasks comprises executing each of the parallel tasks in phases (col. 7 lines 34-49).

42. Blair teaches the invention as claimed, including each parallel task providing a code to indicate if the task is to be re-invoked in the next phase (col. 5 line 53 - col. 6 line 11).

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43. As per claim 39, Blair teaches the invention as claimed, including the method of claim 38, wherein providing the code comprises providing the code to a task coordinator (col. 5 line 33 - col. 6 line 11).

44. As per claim 40, Blair teaches the invention as claimed, including the method of claim 39, wherein the code comprises a first code to indicate that the task coordinator is to invoke a component in the next phase (col. 5 line 33 - col. 6 line 11).

45. As per claim 41, Blair teaches the invention as claimed, including the method of claim 39, wherein the code comprises a second code to indicate that the task is not to invoke a component in the next phase (col. 5 line 33 - col. 6 line 11).

46. As per claim 42, Swami teaches the invention as claimed, including the method of claim 39, wherein the code synchronizes the operation of one or more components (col. 7 lines 34-49).

47. As per claim 43, Swami teaches the invention as claimed, including the method of claim 7, wherein executing the plurality of multi-phase parallel tasks comprises:

executing at least first and second software components in parallel (col. 6 line 51 - col. 7 line 33);

each of the first and second software components performing one or more operations in a first phase (col. 6 lines 34-49); and

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each of the first and second software components performing one or more operations in the second phase (col. 6 lines 34-49).

48. Blair teaches the invention as claimed, including waiting for a message comprising the code from each of the first and second software components prior to proceeding to a second phase (col. 5 line 53 - col. 6 line 11).

49. As per claim 44, Swami teaches the invention as claimed, including the method of claim 43, further comprising:

waiting for another message from each of the first and second software components prior to proceeding to a third phase (col. 6 lines 34-49);

the first software component performing one or more operations in the third phase (col. 6 lines 34-49); and

the second software component being idle in the third phase (col. 3 lines 7-22).

50. As per claim 45, Blair teaches the invention as claimed, including the method of claim 44, further comprising:

receiving a first message from the first software component indicating that the first software component is to be re-invoked in the third phase (col. 5 line 53 - col. 6 line 11); and

receiving a second message from the second software component indicating that the second component is not to be re-invoked in the third phase (col. 5 line 53 - col. 6 line 11).

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51. As per claim 46, Swami teaches the invention as claimed, including the apparatus of claim 15, wherein the controller comprises at least first and second software components executable in parallel to perform the plurality of tasks (col. 6 line 51 - col. 7 line 33);

wherein each of the first and second software components is executable to perform one or more operations in a first phase (col. 6 lines 34-49); and

wherein each of the first and second software components is executable to perform one or more operations in the second phase (col. 6 lines 34-49).

52. Blair teaches the invention as claimed, including the controller to wait for a message comprising the code from each of the first and second software components prior to proceeding to a second phase (col. 5 line 53 - col. 6 line 11).

53. As per claim 47, Swami teaches the invention as claimed, including the apparatus of claim 46, wherein the controller is adapted to further wait for another message from each of the first and second software components prior to proceeding to a third phase (col. 6 lines 34-49);

wherein the first software component is executable to perform one or more operations in the third phase (col. 6 lines 34-49), and the second software component is idle in the third phase (col. 3 lines 7-22).

54. As per claim 48, Blair teaches the invention as claimed, including the apparatus of claim 47, wherein the controller is adapted to further:

receive a message from the first software component indicating that the first software component is to be re-invoked in the third phase (col. 5 line 53 - col. 6 line 11); and

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receive a second message from the second software component indicating that the second component is not to be re-invoked in the third phase (col. 5 line 53 - col. 6 line 11).

55. As per claim 49, Swami teaches the invention as claimed, including the system of claim 22, wherein the client system is adapted to execute plural tasks in parallel, each of the plural tasks executable in plural phases (col. 7 lines 34-49).

56. As per claim 50, Swami teaches the invention as claimed, including the article of claim 29, wherein executing each of the parallel tasks in plural phases comprises:

executing at least first and second software components in parallel (col. 6 line 51 - col. 7 line 33);

each of the first and second software components performing one or more operations in a first phase (col. 6 lines 34-49);

waiting for a message from each of the first and second software components prior to proceeding to a second phase (col. 6 lines 34-49); and

each of the first and second software components performing one or more operations in the second phase (col. 6 lines 34-49).

57. As per claim 51, Swami teaches the invention as claimed, including the article of claim 50, wherein the instructions when executed cause the client system to further:

wait for another message from each of the first and second software components prior to proceeding to a third phase (col. 6 lines 34-49);

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cause the first software component to perform one or more operations in the third phase (col. 6 lines 34-49); and

cause the second software component to be idle in the third phase (col. 3 lines 7-22).

58. As per claim 52, Blair teaches the invention as claimed, including the article of claim 51, wherein the instructions when executed cause the client system to further:

receive a first message from the first software component indicating that the first software component is to be re-invoked in the third phase (col. 5 line 53 - col. 6 line 11); and

receive a second message from the second software component indicating that the second software component is not to be re-invoked in the third phase (col. 5 line 53 - col. 6 line 11).

Response to Arguments

59. Applicant's arguments with respect to claims 2-4, 6-22, 24-25, 28-34, and 37-52 have been considered but are moot in view of the new grounds of rejection.

Conclusion

60. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Syed J Ali whose telephone number is (571) 272-3769. The examiner can normally be reached on Mon-Fri 8-5:30, 2nd Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Meng-Ai T An can be reached on (571) 272-3756. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Syed Ali
September 27, 2004



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